

## CLAIMS

1           1.       The method of forming a tool having a relatively large volume  
2       base and a relatively small volume work engaging surface supported on the  
3       base, comprising: forming a base from wrought or cast materials and creating  
4       the working surfaces by depositing superimposed layers of an alloy having the  
5       desired hardness and wear-resistant properties on the base by deposition using  
6       a programmed numerical control system to position a deposition head  
7       comprising a focused heating beam, a material supply for the beam relative to  
8       the base so as to create an advancing weld pool which solidifies to form the  
9       layers, and feedback means for controlling the process parameters.

1           2.       The method of claim 1 where the material supply feeds an alloy  
2       powder of materials chosen to provide the working surface with properties of  
3       hardness and wear resistance which exceed those of the material of the base.

1           3.       The method of claim 1 wherein the tool is a die-cast die  
2       requiring a work contacting area having low solubility in the cast material.

1           4.       The method of claim 3 where the cast material is aluminum and  
2       the deposition material includes molybdenum.

1           5.       The method of claim 1 wherein the deposition head is supported  
2       on the wrist of a numerically controlled robot programmed to form the work-  
3       engaging surface on the base.

1           6.       The method of claim 1 wherein the deposition process is closed  
2       loop.

1           7.       The method of claim 6 wherein the closed-loop operation is  
2       achieved by employing optical sensors for the deposited material.